Profectis
Technischer Kundendienst
QUELLE.

Serviceunterlage

Produkt-Nr.:
413.617-2

Typ/Privileg-Nr.:
AR-CD 1020

Autoradio mit CD

```
UTS-Nr.:          999          QUELLE
Best.Nr.:         4136172/01
Ger.Bez.:         AUTORADIO MIT CD  UNIVERSUM

GKz:                G  GERAET
WGT:              672  AUTORADIOS
KD-Sektor:          T  TONBANDGERAETE
BaumNr.:           00  KEIN DIAGNOSEBAUM VORHANDEN
Klassierung:       AR  AUTORADIO, EQUALIZER U. ZUBEHOER
IFW-FehlerGru.:   205  RDF.,VERST.,TB.,PHONO,CD,CB
Type/Privileg/Universum.Nr AR-CD1020
Beschreibung                AR MIT CD/MP3-PLAYER
VK-Preis: 150.00

Serviceart:             1
Garantie fuer Kunden  24 Monate
Sondervereinbarungen: 92  WBW GARANTIE AUF MATERIAL UND ARBEITSZEIT

Garantiereparatur     0004063  PROFECTIS GMBH
Sondervereinbarungen:       0  SIEHE SERVICEART

--------------------------------------------------------------------------------
Katalog                                        Seite
  Erst  023 SONDERKATALOGE F/S 2002             0000
  Letzt 000 NOCH IM AKTUELLEN KATALOG           0000

--------------------------------------------------------------------------------
Geraete Info:

--------------------------------------------------------------------------------
Technische Daten:

--------------------------------------------------------------------------------
Fehler:

--------------------------------------------------------------------------------
```


Nachdruck nicht gestattet
Änderungen vorbehalten

PERFORMANCE SPECIFICATIONS

GENERAL TEST CONDITION

Frequency Range	: FM 87.5-108 MHz MW 531-1620 kHz
Power Output	: 4x40 Watt
Load Speaker Impedance	: 4 ohm
Power Requirement	: 12V-Auto Batteries
Dimensions	: 182x53x180mm
Weight	: 1.6 kg
Frequency Response	: 17 Hz - 20 kHz +0/-3dB

A. Description
MW/FM Stereo & RDS digital tuning car radio,single CD player with CD-R & CD-RW, 4 channel high power

B. Power Supply

Test to specification	14.4 VOLTS
Operate (need not meet spec)	11.0 ~ 16.0 VOLTS

C. Speaker impedance
4 OHM Per channel

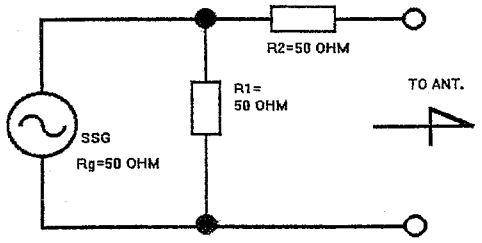
D. Operating temperature

Radio	(need not meet spec.) operate at - 20°C ~ + 60°C
CD Player	(need not meet spec.) operate at - 10°C ~ + 60°C

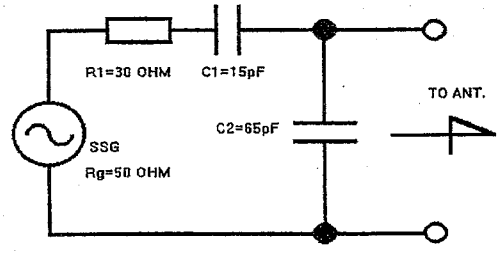
E. Mounting position

Radio	Between horizontal to +30°C DEGREE
CD Player	Horizontal
	The range bellow is allowed if no question on the test item
	Front - to - rear angle : 0 deg ~ 20 deg
	Side - to - side angle : -5 deg ~ +5 deg

F Test condition
1. Signal generators
FM 50 OHM source impedance open load elaborated with dummy anternna as follow



The RF voltage at antenna is -12dB of reading of signal generator output level
MW 50 OHM source impedance open load elaborated with dummy antenna as follow



The RF voltage is directly refer to the signal generator output level

PERFORMANCE SPECIFICATIONS - CONTINUED

2. Standard reference output level
1W standard 4 OHM resister loading per channel
3. Recever input test level
MW 30% modulation , 400Hz unless otherwise specified
FM mono : 45kHz deviation, 1kHz unless otherwise specified
FM stereo:37.5kHz (L+ R), and 7.5kHz pilot 1kHz unless otherwise specified
FM RDS : 37.5kHz (L + R), 7.5kHz pilot and 1.2kHz RDS 1kHz unless otherwise spicified
4. CD player input test signal
Standard test disc (YEDS -7, SBC444A, TCD712R & TCD731RA)
5. All measurements are taken at DC 14.4V and room temperature 18°C ~ 35 °C
6. Bass / treble / banlance & fader control at center position unless otherwise spicified

ITEM	CD SECTION		T. P.	UNIT	NOR	LIMIT
1	S / N Ratio		Flat	dB	55	>45
			w/BPF.	dB	58	>50
2	Distortion		100Hz	%	0.5	<3.0
			1kHz	%	0.5	<3.0
			10kHz	%	0.5	<3.0
			20kHz	%	0.5	<3.0
3	Frequency Response		40Hz	dB	-1	-1±3
			100Hz	dB	0	0±3
			1kHz	dB	REF.	/
			10kHz	dB	0	0±3
			20kHz	dB	-1	-1±3
4	Noise Level at Volume Min.		Infinity Zero	mV	1	3
5	Dynamic Range w/15kHz LPF		1kHz	dB	60	60±8
6	Channel separation w/20kHz LPF		100Hz	dB	50	>42
			1kHz	dB	50	>42
			10kHz	dB	45	>32
			20kHz	dB	45	>32
7	De-emphassis Error		1kHz	dB	REF.	/
			5kHz	dB	-4.53	-4.53 ± 4
			16kHz	dB	-9.04	-9.04 ± 4
8	Play Ability	Interruption (SBC-444A)		MM	0.8	≥ 0.5
		Black dot (SBC-444A)		MM	0.6	≥ 0.3
		Fingerprint (SBC-444A)		µM	75	≥ 65
		Eccentricity (TCD-712R)		µM	±140	±140
		Vertical (TCD-731RA)		MM	±1.0	>±0.4
9	CD Play Drop Out			V	10	<10.5
10	10% T. H. D. Power			W	25	>18
11	Max. Output Power at 0dB			W	40	>28
12	Max. Output Power at -10dB			W	25	>18
13	Bass Effect at 100Hz			dB	±9	±10±4
14	Treble Effect at 10kHz			dB	±9	±10±4
15	Loudness Effect (at Ref. Output)		100Hz	dB	+8	8±4
16	CD 0 dB 1kHz Input / FM 45kHz DEV. 1kHz O/P Unbalance			dB	10	10±4
17	AUX. in 1V 1kHz input / CD 0dB 1kHz Level Unbalance (Optional)			dB	0	0±4
18	Mute Effect			dB	60	>45
19	Power Off Current Drain			mA	12	<20

PERFORMANCE SPECIFICATIONS - CONTINUED

ITEM	FM MONO 45kHz DEV. & 1kHz INPUT	T. P.	UNIT	NOR	LIMIT
1	Intermediate Frequency		MHz	10.7	10.7±0.03
2	Frequency Range	LOW END	MHz	87.5	
		HIGH END	MHz	108.0	
3	I .H.F. Sens. (75kHz DEV. & T.H.D. 3%)	90.0MHz	dBμV	8	<15
		98.0MHz	dBμV	8	<15
		106.0MHz	dBμV	8	<15
4	22.5kHz DEV. Sensitivity (30 dB S/N)	90.0MHz	dBμV	5	<15
		98.0MHz	dBμV	5	<15
		106.0MHz	dBμV	5	<15
5	S / N Ratio (1mV Input)	98.0MHz	dB	50	>40
6	Distortion (1mV Input)	98.0MHz	%	0.5	<1.5
7	10% T. H. D. Power Output	98.0MHz	W	25	>18
8	Max. Vol. Power Output	98.0MHz	W	40	>28
9	- 3dB Limting (1mV Input)	98.0MHz	dBμV	10	<20
10	IF Rejection	90.0MHz	dB	100	> 60
11	Image Rejection Ratio	106.0MHz	dB	45	>35
12	AM Suppression (MW 30% Mod.)	98.0MHz	dB	60	>30
13	Spurious Response (+ 1/2 IF / 206.7MHz)	98.0MHz	dB	60 / 80	>45/55
14	De-emphasis (98.0MHz 1mV Input)	100Hz	dB	0.5	0±4
		1kHz	dB	REF.	/
		5kHz	dB	-6	-6±4
		10kHz	dB	-13	-13±4
		15kHz	dB	-18	-18±4
15	FM -3dB Frequency Response (PRE-EM = 50μS)	98.0MHz	Hz	50~15K	100~10K
16	Overload T. H. D. (100 mV Input)	98.0MHz	%	1.0	<3.0
17	OSC. Drop Out Voltage	98.0MHz	V	10	< 10.5
18	Auto Seek Sens. at DX Mode	90.0MHz	dBμV	25	25±8
		98.0MHz	dBμV	25	25±8
		106.0MHz	dBμV	25	25±8
19	Local Seek Sens. (Auto Memory Store Only)	90.0MHz	dBμV	45	45±10
		98.0MHz	dBμV	45	45±10
		106.0MHz	dBμV	42	42±10

ITEM	FM Stereo & RDS Ssection 37.5KHz (MAIN+SUB) , 7.5kHz (Pilot) , 1.2kHz (RDS) DEV. & 1kHz Input		T. P.	UNIT	NOR	LIMIT
1	Stereo Separation (1mV Input)	Mod. Freq. 100Hz	L / R	dB	20	>12
			R / L	dB	20	>12
		Mod. Freq. 1kHz	L / R	dB	32	>25
			R / L	dB	32	>25
		Mod. Freq. 10kHz	L / R	dB	20	>12
			R / L	dB	20	>12
2	Stereo on Sensitivity		98.0MHz	dBμV	5	<15
3	38kHz Leakage (1mV Input)		98.0MHz	dB	38	>30
4	Pilot Modulation		98.0MHz	%	6	>2
5	S.N.C. (SEP.=10dB)		98.0MHz	dB	34	34±8
6	H.C.C. PRE-EM ON at -3dB Limiting Input 1kHz/10kHz Ratio		98.0MHz	dB	10	5 ~ 15
7	RDS Indicator Sensitivity		98.0MHz	dBμV	28	<36
8	RDS Seek Sensitivity		98.0MHz	dBμV	28	<36
9	TA Indicator Sensitivity		98.0MHz	dBμV	28	<36
10	TA Seek Sensitivity		98.0MHz	dBμV	28	<36

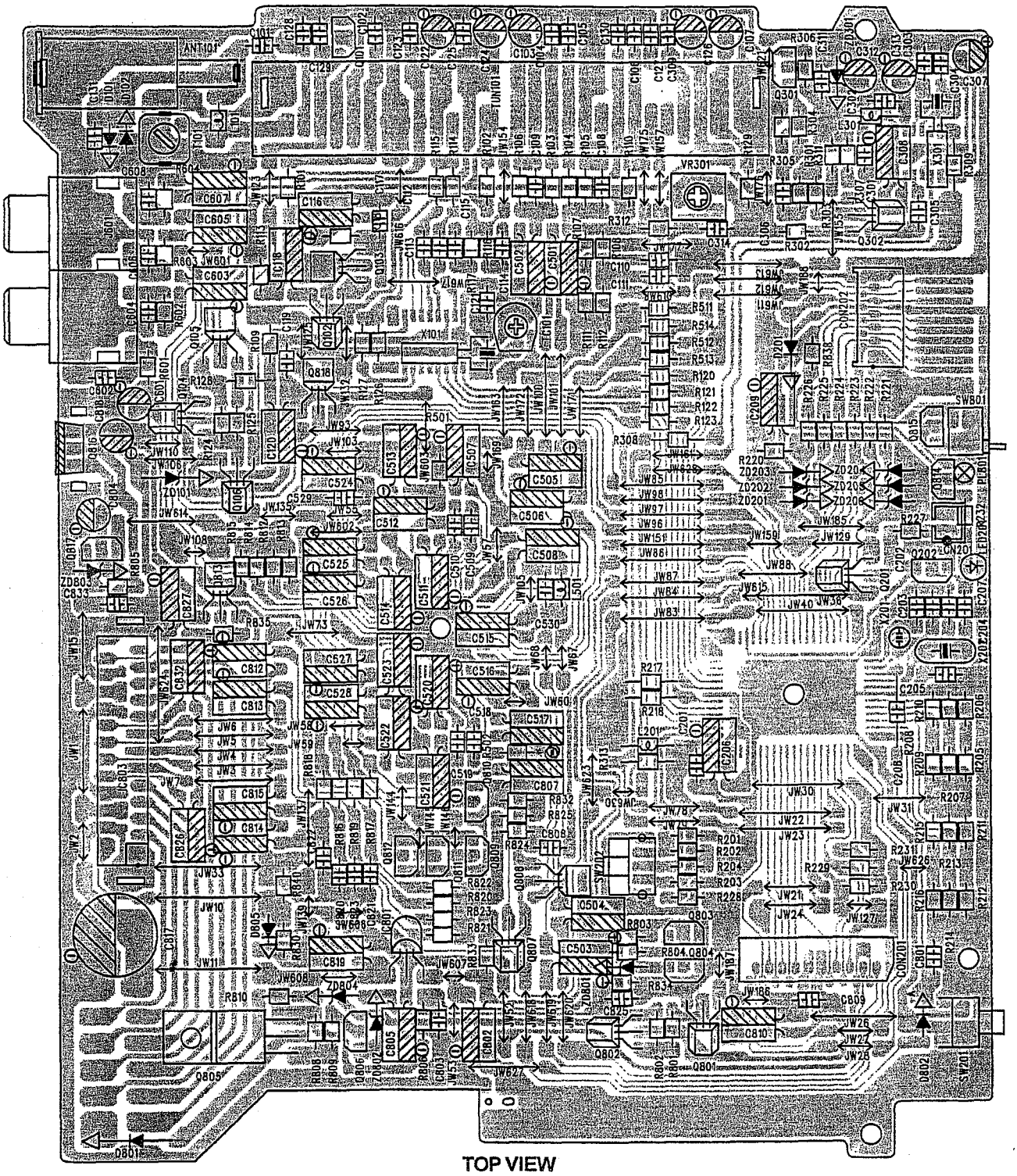
PERFORMANCE SPECIFICATIONS - CONTINUED

ITEM	MW SECTION MODULATION 30% 400Hz		T. P.	UNIT	NOR	LIMIT
1	Intermediate Frequency			kHz	450	450±2
2	Frequency Range (9kHz Step)		LOW END	kHz	522	
			HIGH END	kHz	1620	
3	Usable Sensitivity (S/N=20dB)		603kHz	dBμV	28	<36
			999kHz	dBμV	28	<36
			1404kHz	dBμV	28	<36
4	S / N @ 5 mV Input		999kHz	dB	50	>40
5	Output Power 10%THD. @ 5mV 60% Mod.		999kHz	W	25	>18
6	MAX. Output Power (L / R 60% MOD. @ 100mV Input)		999kHz	W	40	>28
7	Image Rejection		1404kHz	dB	45	>40
8	IF Rejection		603kHz	dB	60	> 45
9	A. G. C. -10dB (100mV Input)		999kHz	dB	50	>40
10	Selectivity ±9kHz		999kHz	dB	30/30	25/25
11	Bandwidth -6dB		999kHz	KHz	6	3 ~ 9
12	T. H. D.	30% Mod. 5 mV Input	999kHz	%	0.5	<1.5
		60% Mod. 100 mV Input	999kHz	%	1.5	<3.0
13	Whistle Modulation 5 mV Input		2 IF	dB	-30	<-26
			3 IF	dB	-36	<-30
14	Audio Fidelity -6dB (5mV Input)		999kHz	Hz	100 ~ 2.4kHz	125 ~ 1.8kHz
15	Oscillator Drop Out		999kHz	V	10	< 10.5
16	MW (MOD.=60%) / FM (DEV.=45kHz) O/P Unbalance		999kHz	dB	0	0±4
17	Auto Seek Sens. at DX Mode		603kHz	dBμV	30	30±8
			999kHz	dBμV	32	32±8
			1404kHz	dBμV	32	32±8
18	Local Seek Sens. (Auto Memory Store Only)		603kHz	dBμV	50	50±10
			999kHz	dBμV	50	50±10
			1404kHz	dBμV	48	48± 0

PRINTED CIRCUIT BOARDS

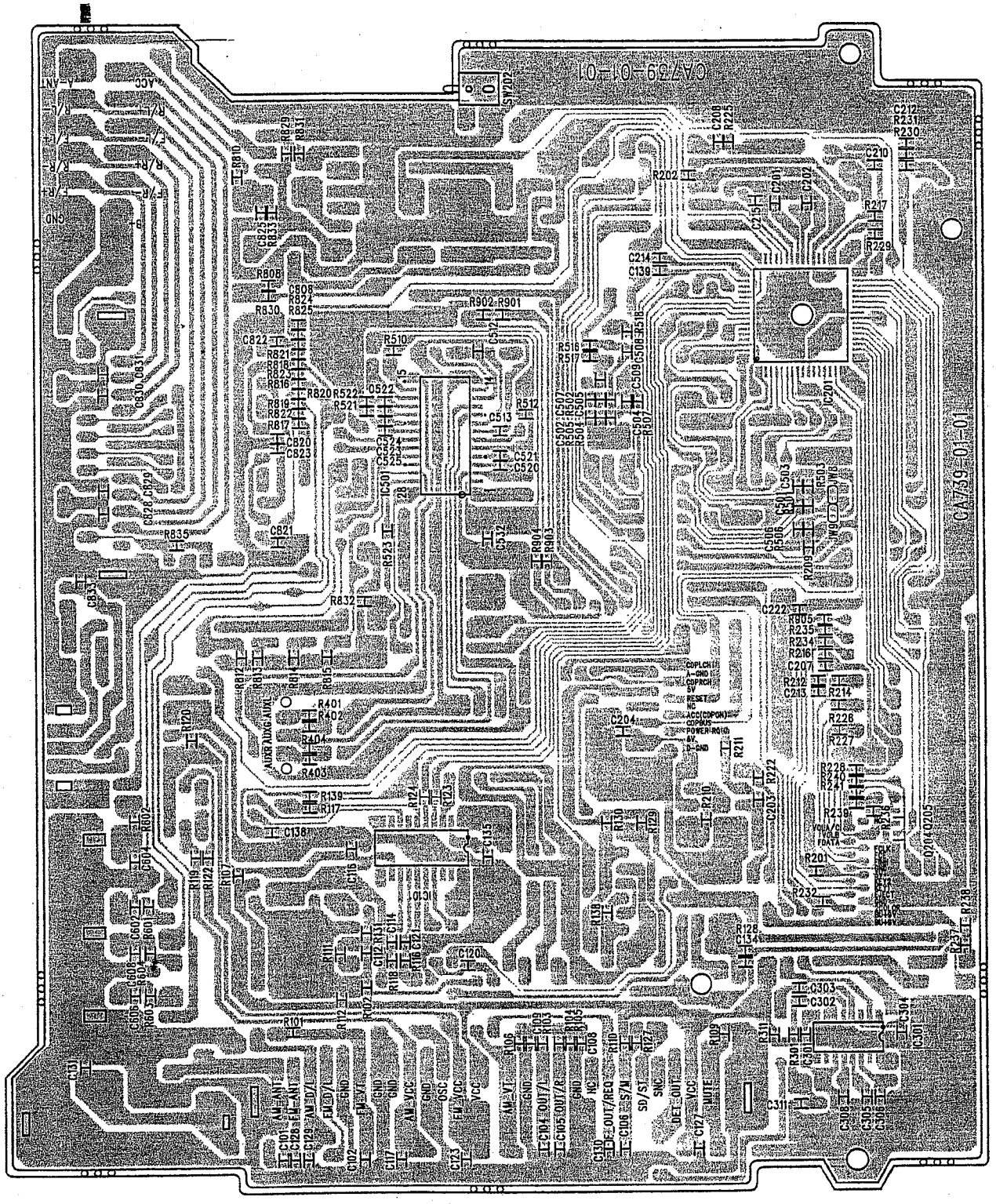
MAIN PCB

CA739-01-01



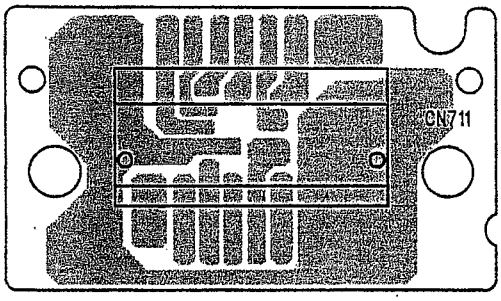
TOP VIEW

MAIN PCB
CA739-01-01

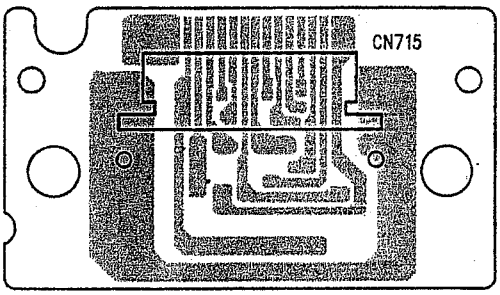


BOTTOM VIEW

CONNECTOR PCB
CA719-01-03

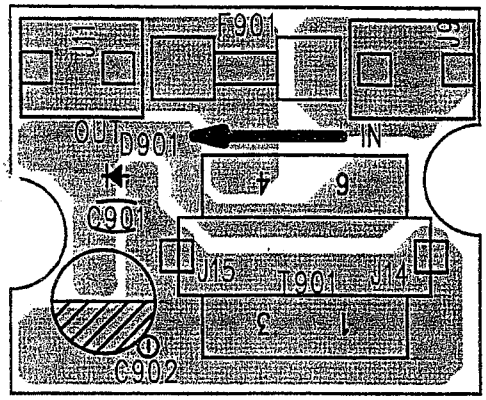


TOP VIEW

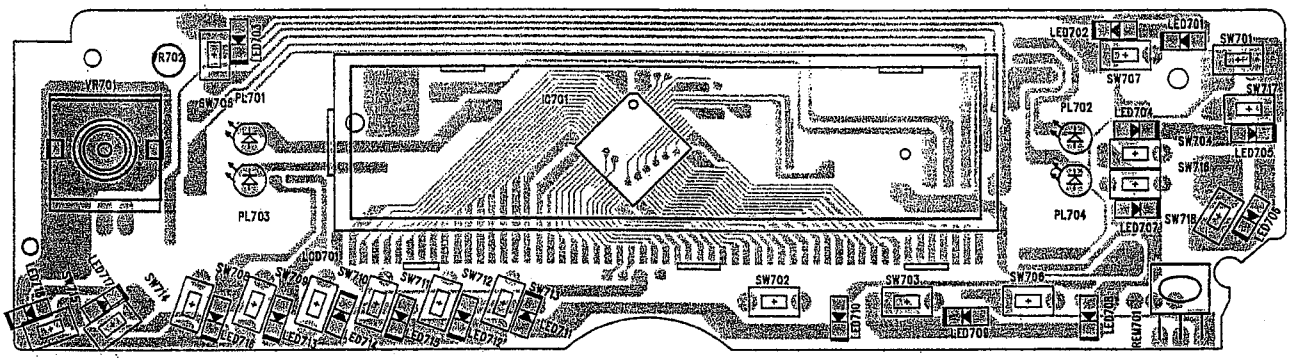


BOTTOM VIEW

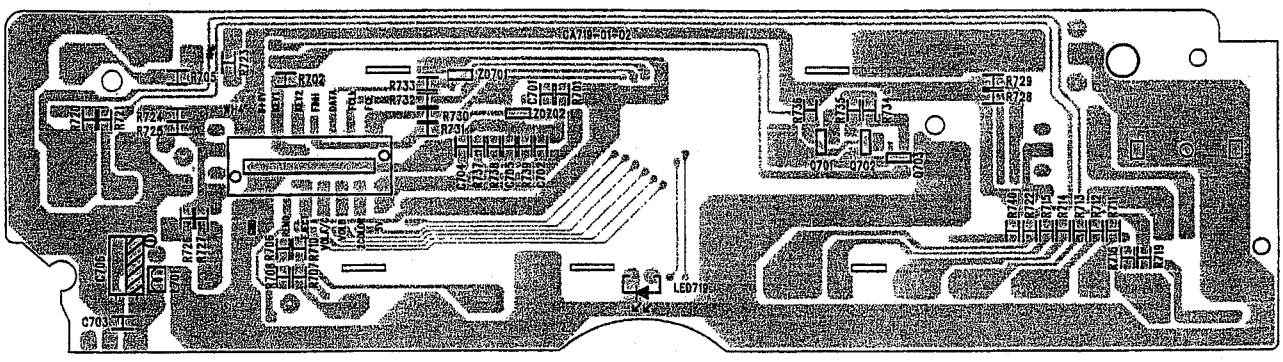
FILTER PCB
CA731-01-01



CONTROL PCB
CA719-01-02



TOP VIEW



BOTTOM VIEW

VOLTAGE CHART - CONTINUED

IC202 (KIA7035)

PIN'S NUMBER	1	2	3
FM	4.97	0	4.87

TRANSISTOR	Q816(C4369Y)			Q817(A123ESA)		
	E	C	B	E	C	B
FM	9.15	10.99	9.71	9.72	9.71	0
TRANSISTOR	Q818(C144ESA)			Q805(A1658Y)		
	E	C	B	E	C	B
FM	0	0	4.96	0	0	10.28
TRANSISTOR	Q806(C144ESA)					
	E	C	B			
AM	0	0	8.96			

IC701 (PT6523LQ)

PIN'S NUMBER	1	2	3	4	5	6	7	8
FM	2.50	2.43	2.43	2.43	2.39	2.39	2.39	2.43
PIN'S NUMBER	9	10	11	12	13	14	15	16
FM	2.39	2.39	2.39	2.39	2.39	2.39	2.39	2.39
PIN'S NUMBER	17	18	19	20	21	22	23	24
FM	0	2.43	2.39	2.39	2.47	2.39	0	2.39
PIN'S NUMBER	25	26	27	28	29	30	31	32
FM	2.47	2.47	2.43	2.47	2.43	2.47	2.43	0
PIN'S NUMBER	33	34	35	36	37	38	39	40
FM	2.46	2.42	2.46	2.39	2.39	2.39	2.39	2.39
PIN'S NUMBER	41	42	43	44	45	46	47	48
FM	2.39	2.39	2.39	2.50	2.50	2.47	2.50	2.50
PIN'S NUMBER	49	50	51	52	53	54	55	56
FM	2.47	2.50	2.47	2.40	2.43	2.43	2.43	4.98
PIN'S NUMBER	57	58	59	60	61	62	63	64
FM	4.97	3.22	1.57	0	3.78	0.54	4.87	0

IC201 (RS8802-004)

PIN'S NUMBER	1	2	3	4	5	6	7	8
FM	0	0	0	4.97	0	0.12	0.84	0
PIN'S NUMBER	9	10	11	12	13	14	15	16
FM	0	4.99	0	0.54	0	0.82	0	0
PIN'S NUMBER	17	18	19	20	21	22	23	24
FM	4.87	0	0	0	4.96	3.65	0	0
PIN'S NUMBER	25	26	27	28	29	30	31	32
FM	0	0	4.88	0	0	0	1.70	4.93
PIN'S NUMBER	33	34	35	36	37	38	39	40
FM	2.60	4.97	4.97	4.87	0	4.97	0	3.13
PIN'S NUMBER	41	42	43	44	45	46	47	48
FM	2.68	0	2.56	0	0	0	4.97	4.97
PIN'S NUMBER	49	50	51	52	53	54	55	56
FM	4.96	0.68	0	0	0	0	4.97	0
PIN'S NUMBER	57	58	59	60	61	62	63	64
FM	4.97	0	4.96	4.96	4.96	0	4.97	0

VOLTAGE CHART

THE MEASURED VALUE IS DC VOLTAGE
UNIT: V
TUNER SECTION
TEST CONDITION: SET AM/FM TUNER ONE FREQUENCY

IC101(TC9257F)

PIN'S NUMBER	1	2	3	4	5	6	7	8	9	10
FM	2.52	2.74	4.97	4.97	0	0.24	0	9.37	0.55	0
PIN'S NUMBER	11	12	13	14	15	16	17	18	19	20
FM	0.65	5.19	0	2.51	0	2.52	5.17	0.61	1.18	1.10

TRANSISTOR	Q102(C1741S)			Q103(C1741S)		
	E	C	B	E	C	B
FM	0	6.39	0.64	0.64	6.39	1.13
TRANSISTOR	Q110(C114ESA)			Q105(A123ESA)		
	E	C	B	E	C	B
FM	0	0	5.17	9.16	9.07	0.24

TRANSISTOR	Q104(A123ESA)		
	E	C	B
AM	9.12	9.06	0.25

IC301 (BU1923F)

PIN'S NUMBER	1	2	3	4	5	6	7	8
FM	2.57	2.75	2.67	2.64	4.98	0	0	2.65
PIN'S NUMBER	9	10	11	12	13	14	15	16
FM	0	0	0	5.13	1.96	2.43	0	2.56

IC501 (PT2313L)

PIN'S NUMBER	1	2	3	4	5	6	7	8	9	10
FM	4.6	9.23	0	4.57	4.57	4.59	0	4.6	4.58	4.58
PIN'S NUMBER	11	12	13	14	15	16	17	18	19	20
FM	0	4.6	4.58	4.58	4.57	4.57	4.57	4.56	4.58	4.56
PIN'S NUMBER	21	22	23	24	25	26	27	28		
FM	4.58	4.56	4.57	4.56	4.57	0	0	0.97		

IC803 (TA8259H)

PIN'S NUMBER	1	2	3	4	5	6	7	8	9	10
FM	0	4.91	5.50	0	5.50	11	5.50	0	5.50	6.91
PIN'S NUMBER	11	12	13	14	15	16	17	18	19	20
FM	1.23	1.23	0	1.23	1.23	0	5.60	0	5.60	11
PIN'S NUMBER	21	22	23	24	25					
FM	5.60	0	5.60	3.53	0.93					

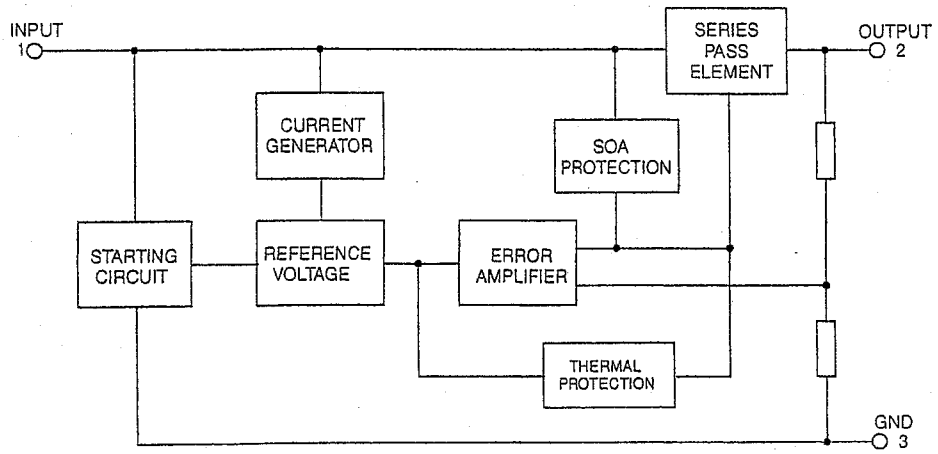
CONTROL SECTION

IC802 (LM78L05ACZ)

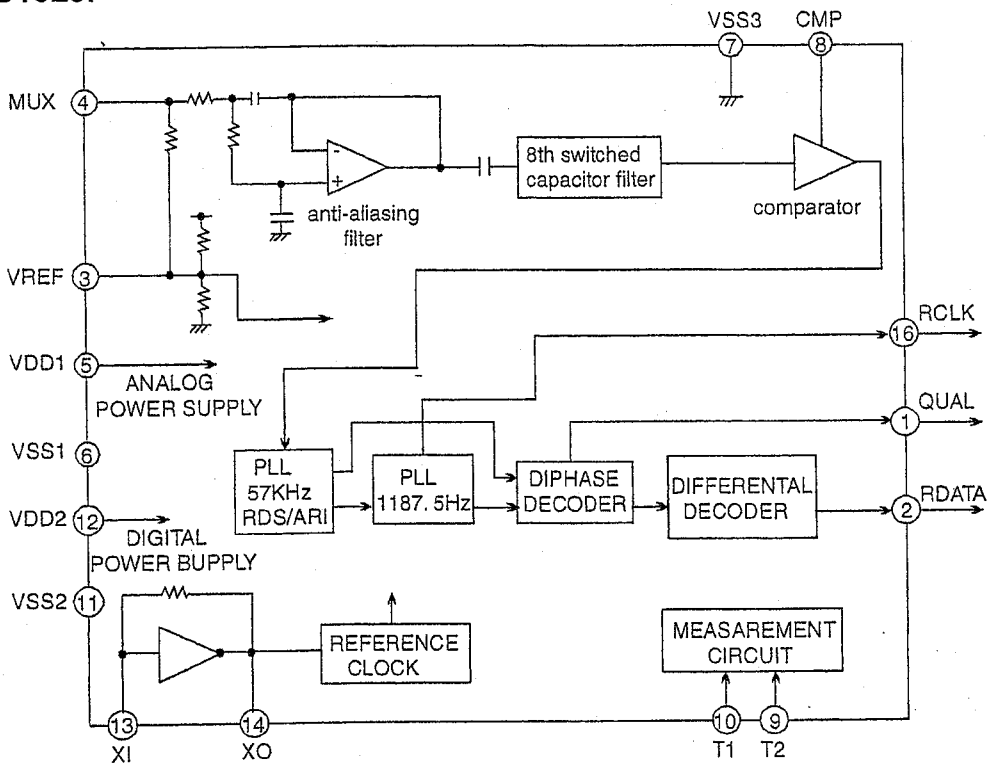
PIN'S NUMBER	1	2	3
FM	4.98	0	11.27

IC LEAD IDENTIFICATION AND INTERNAL DIAGRAMS

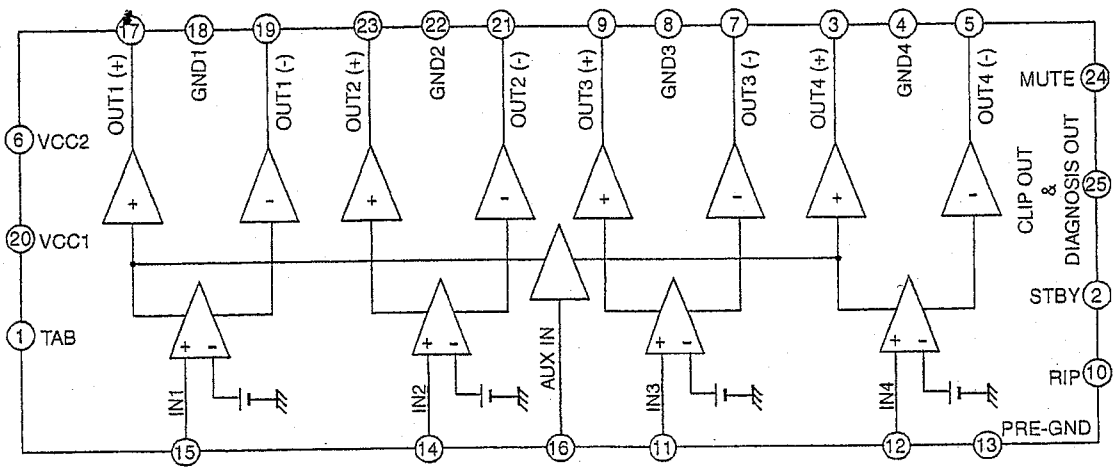
IC802 LM7805ACZ



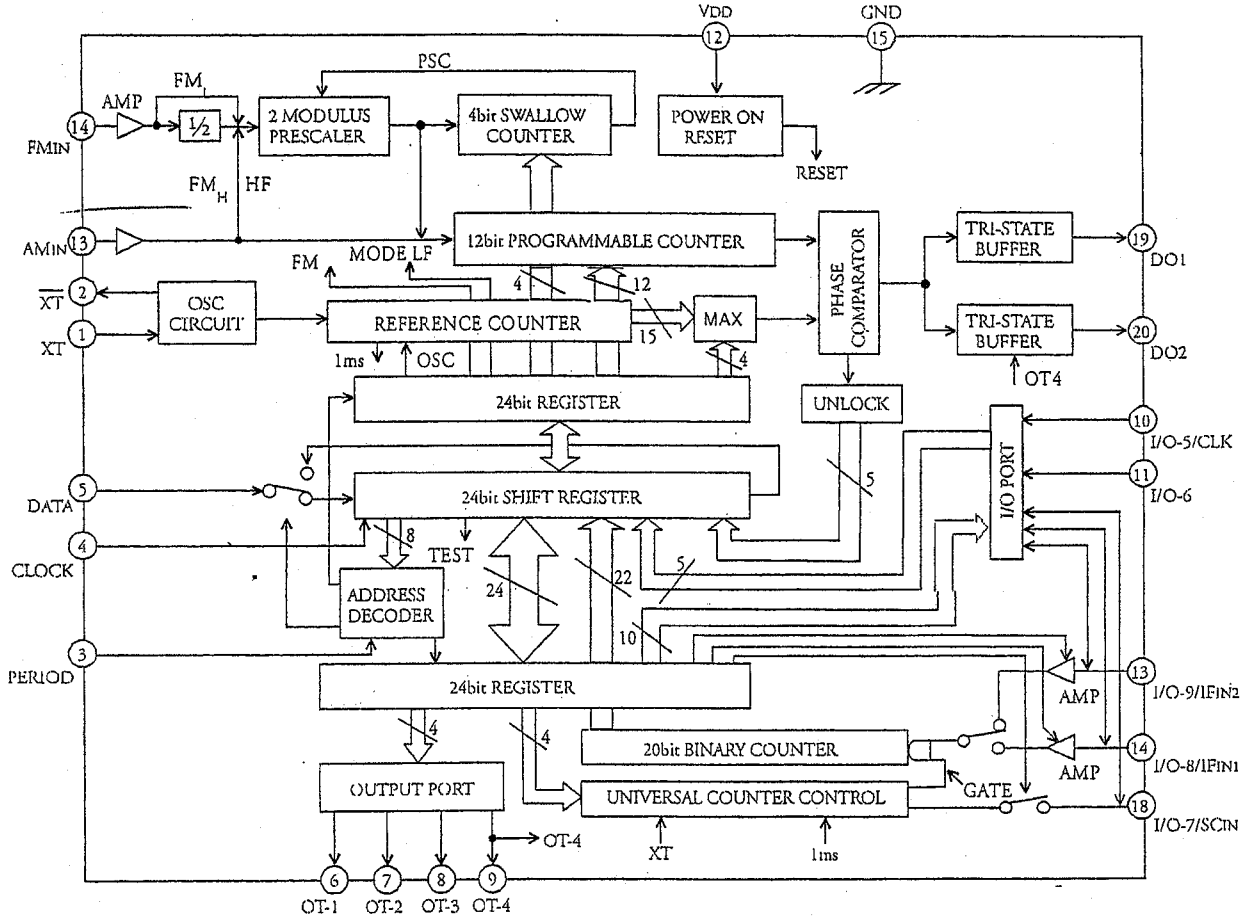
IC301 BU1923F



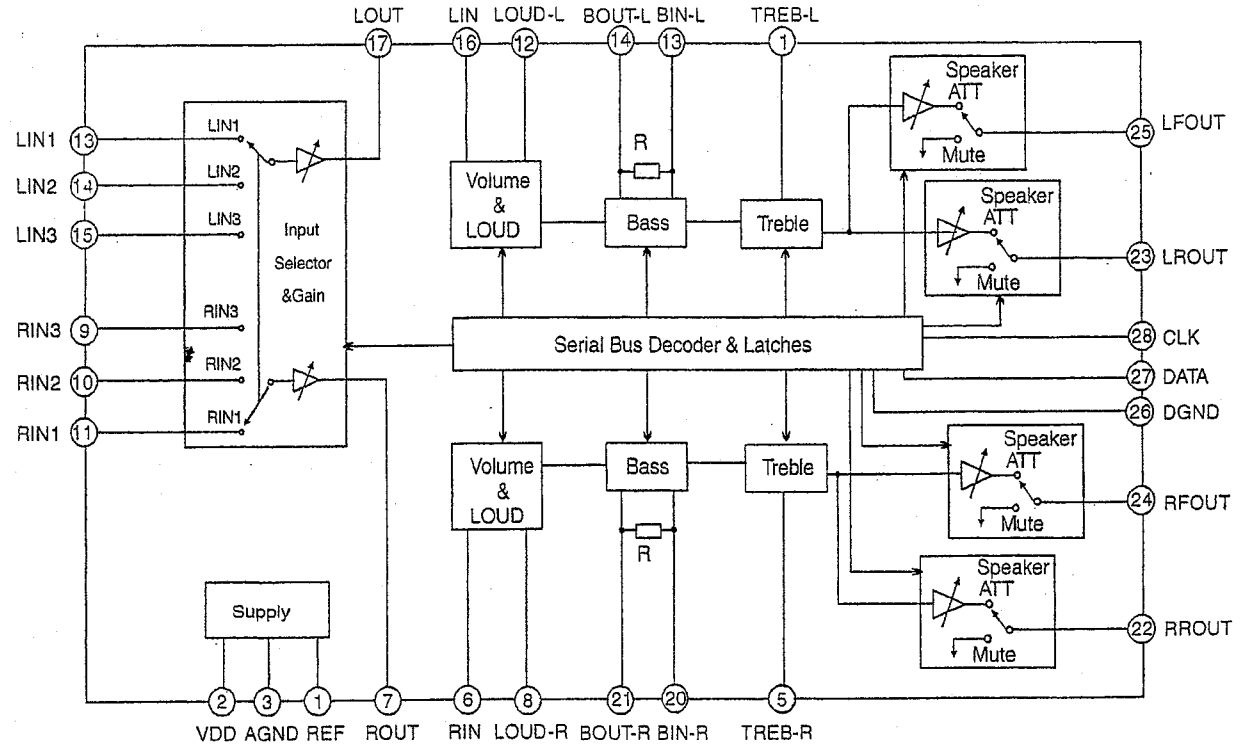
IC803 TA8259H



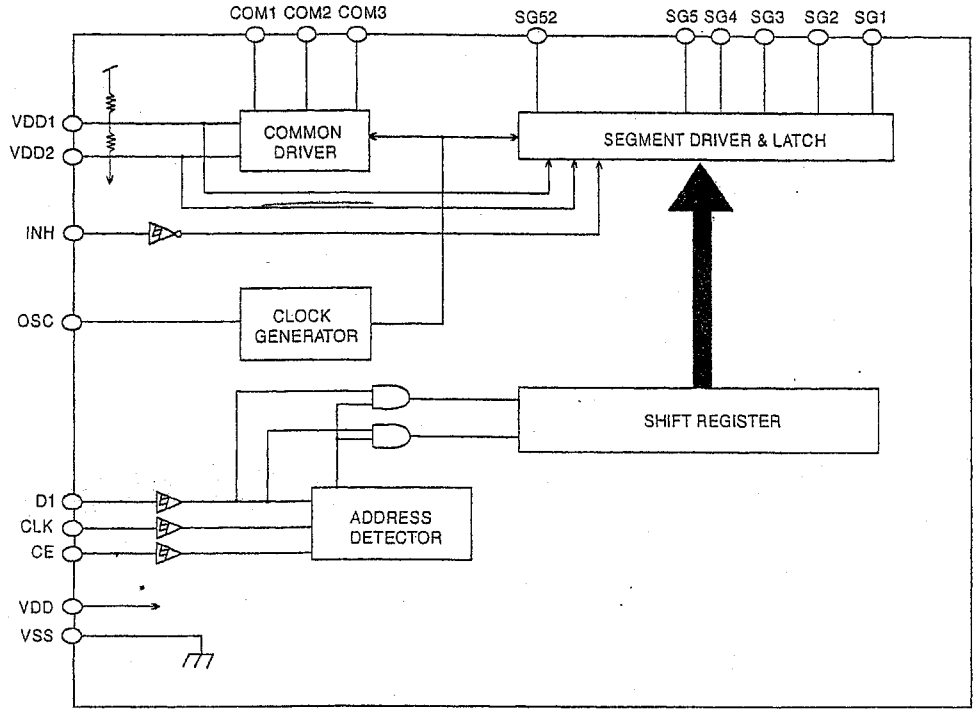
IC101 TC9257F



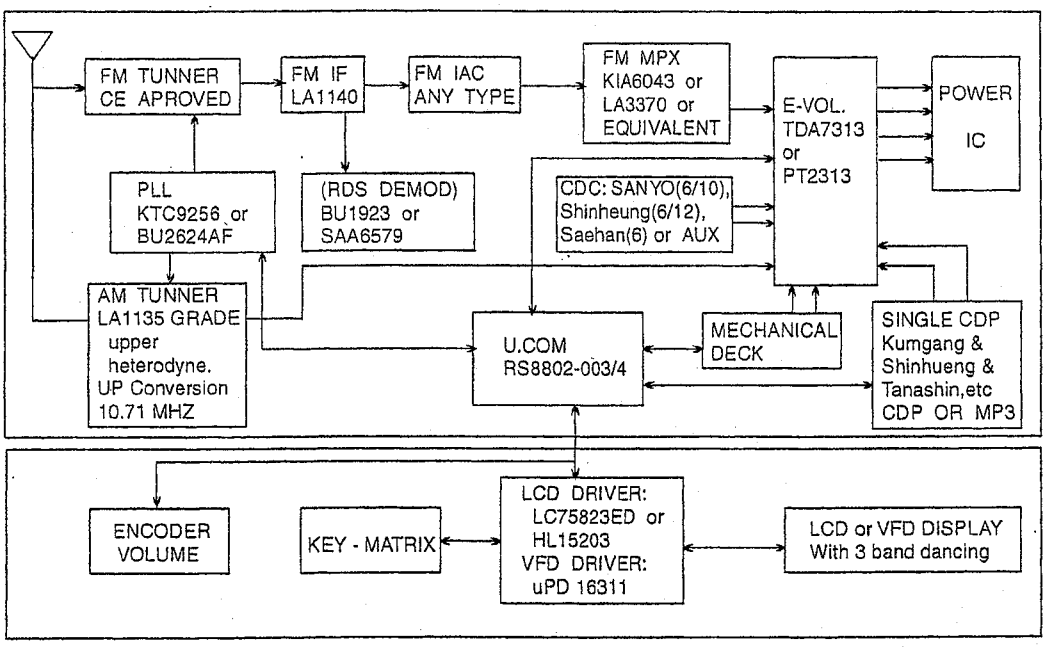
IC501 PT2313L



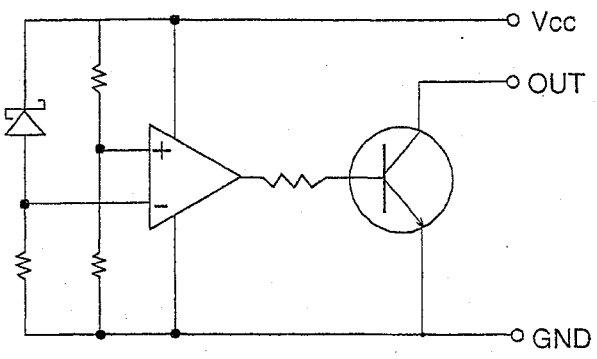
IC701 PT6253LQ



IC201 PR8802-004

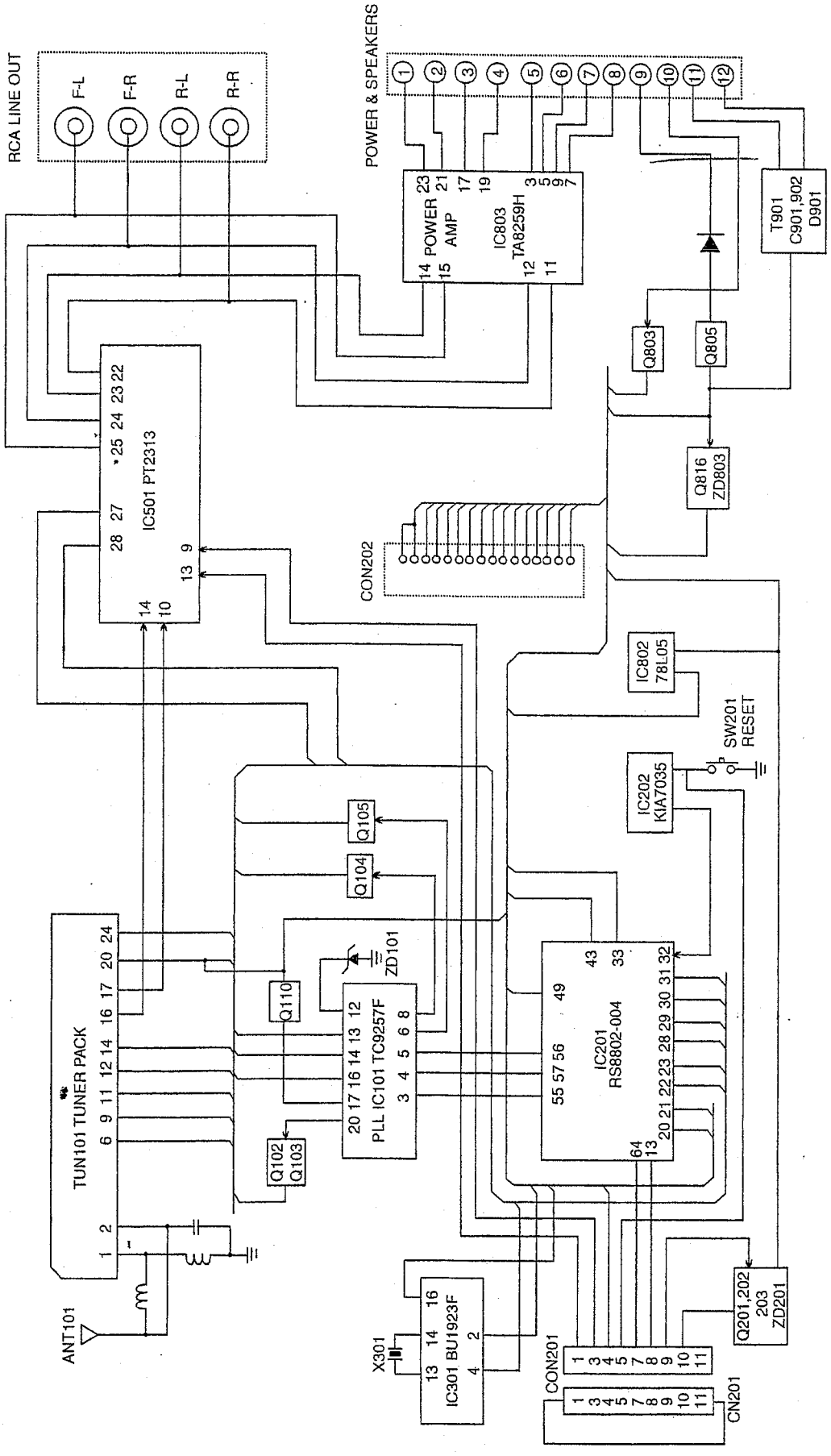

FM TUNNER CE APROVED
FM IF LA1140
FM IAC ANY TYPE
FM MPX KIA6043 or LA3370 or EQUIVALENT
E-VOL. TDA7313 or PT2313
POWER IC
PLL KTC9256 or BU2624AF
(RDS DEMOD) BU1923 or SAA6579
CDC: SANYO(6/10), Shinheung(6/12), Saehan(6) or AUX
AM TUNNER LA1135 GRADE upper heterodyne. UP Conversion 10.71 MHZ
U.COM RS8802-003/4
MECHANICAL DECK
SINGLE CDP Kumgang & Shinhueng & Tanashin,etc CDP OR MP3
ENCODER VOLUME
KEY - MATRIX
LCD DRIVER: LC75823ED or HL15203 VFD DRIVER: uPD 16311
LCD or VFD DISPLAY With 3 band dancing

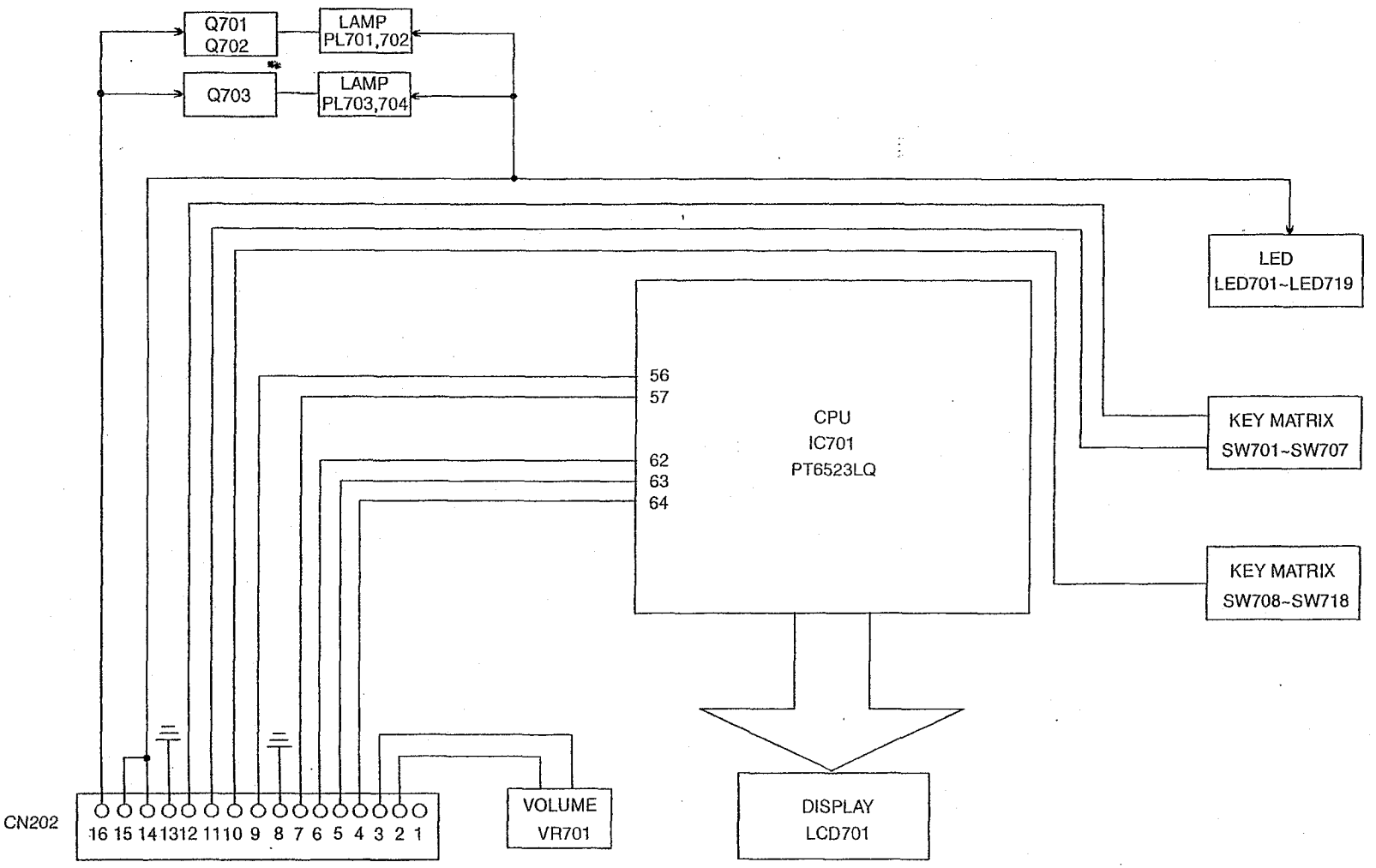
IC202 KIA7035AP



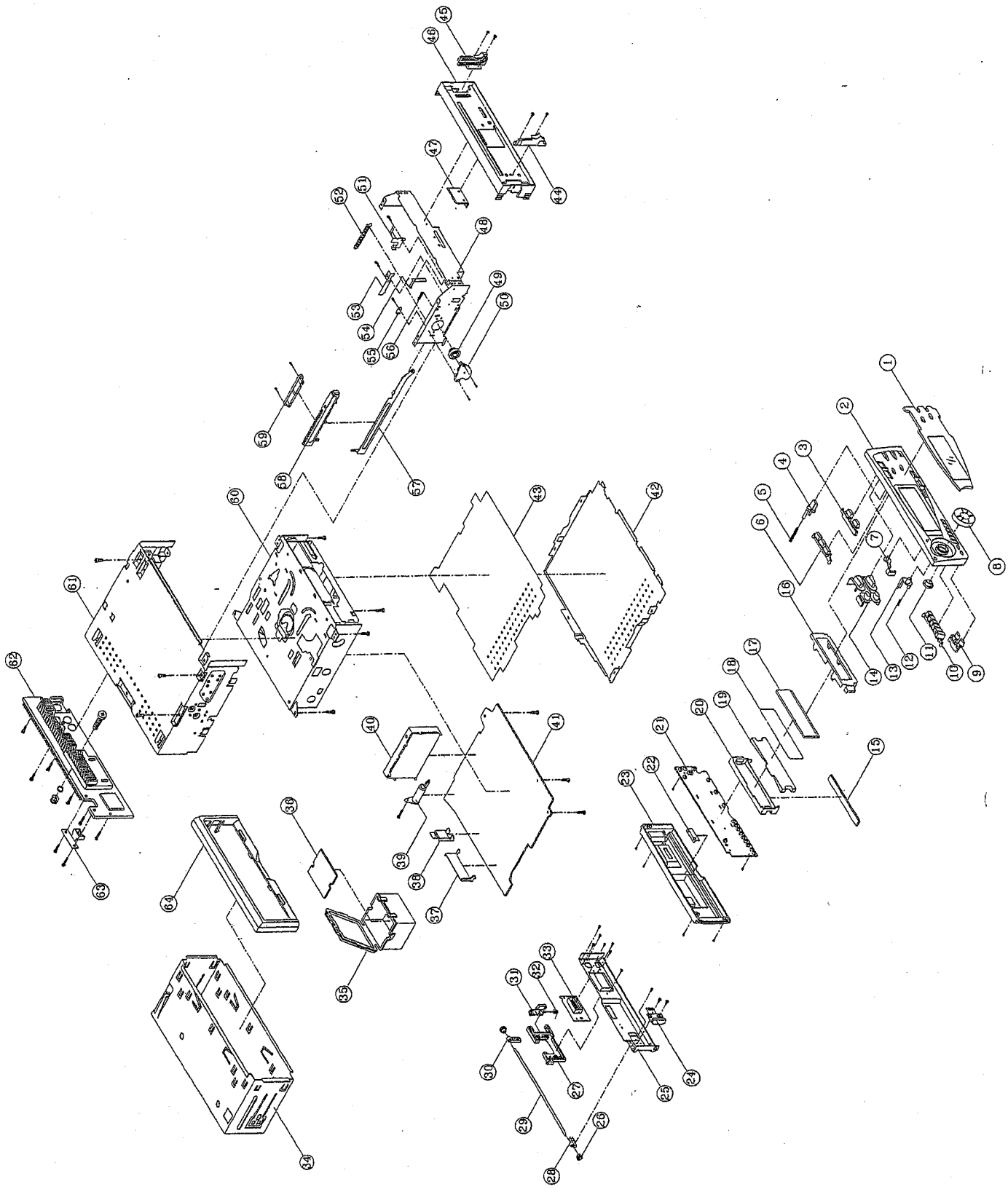
BLOCK DIAGRAMS

TUNER & POWER SECTION

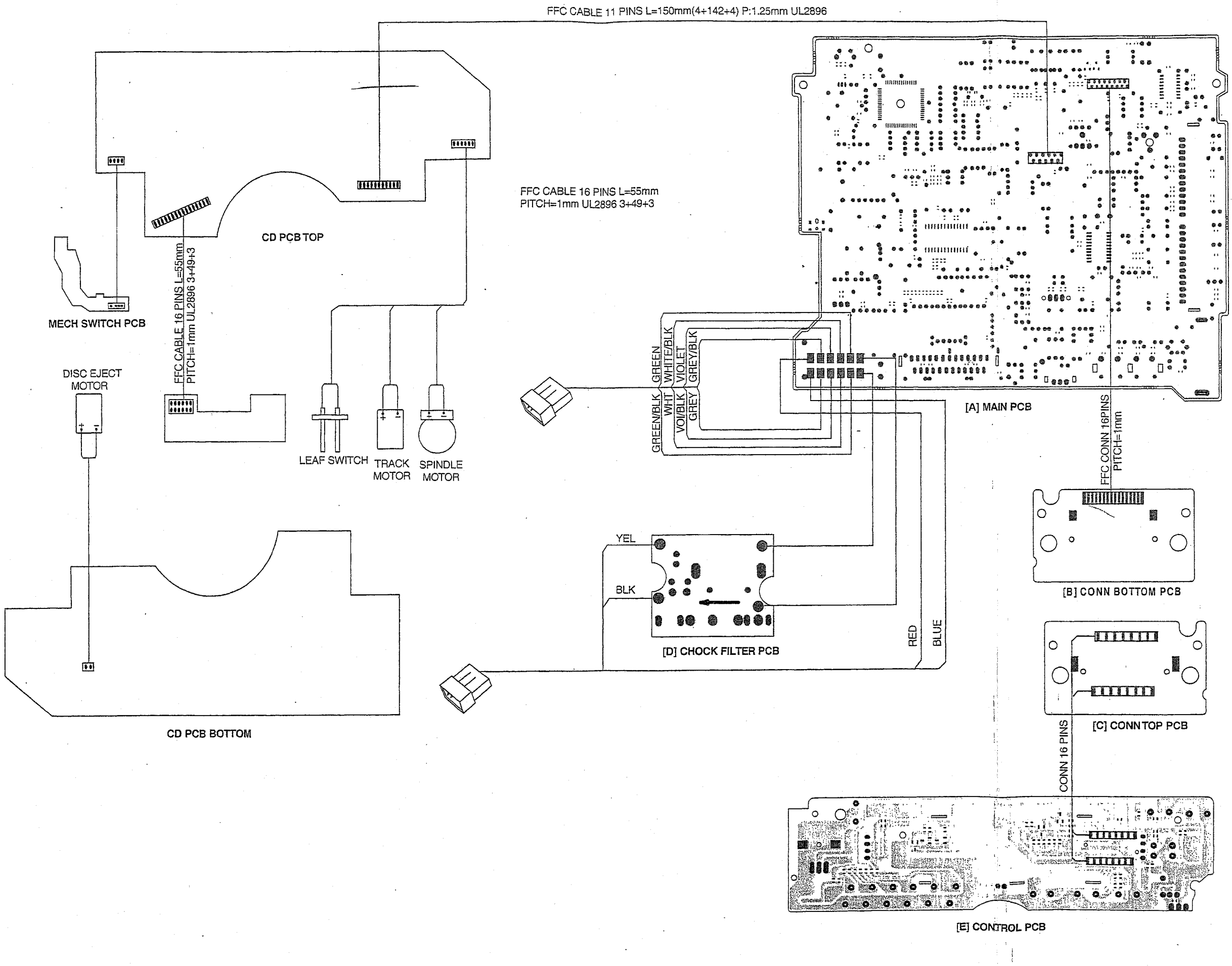



Q701
Q702
LAMP
PL701,702
Q703
LAMP
PL703,704
LED
LED701~LED719
56
57
62
63
64
CPU
IC701
PT6523LQ
KEY MATRIX
SW701~SW707
KEY MATRIX
SW708~SW718
CN202
16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1
VOLUME
VR701
DISPLAY
LCD701

EXPLODED DRAWING

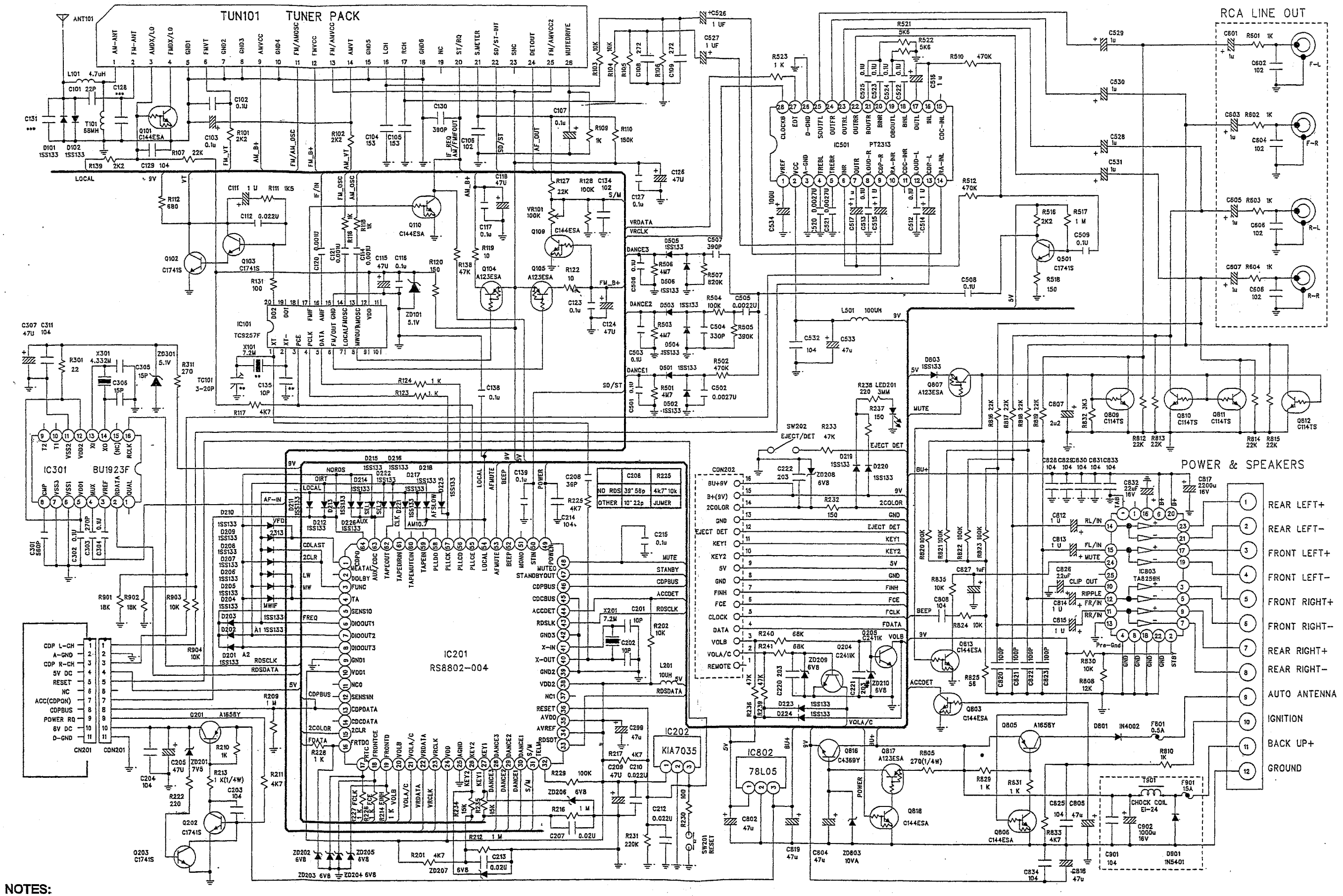


WIRING DIAGRAM



SCHEMATIC DIAGRAMS

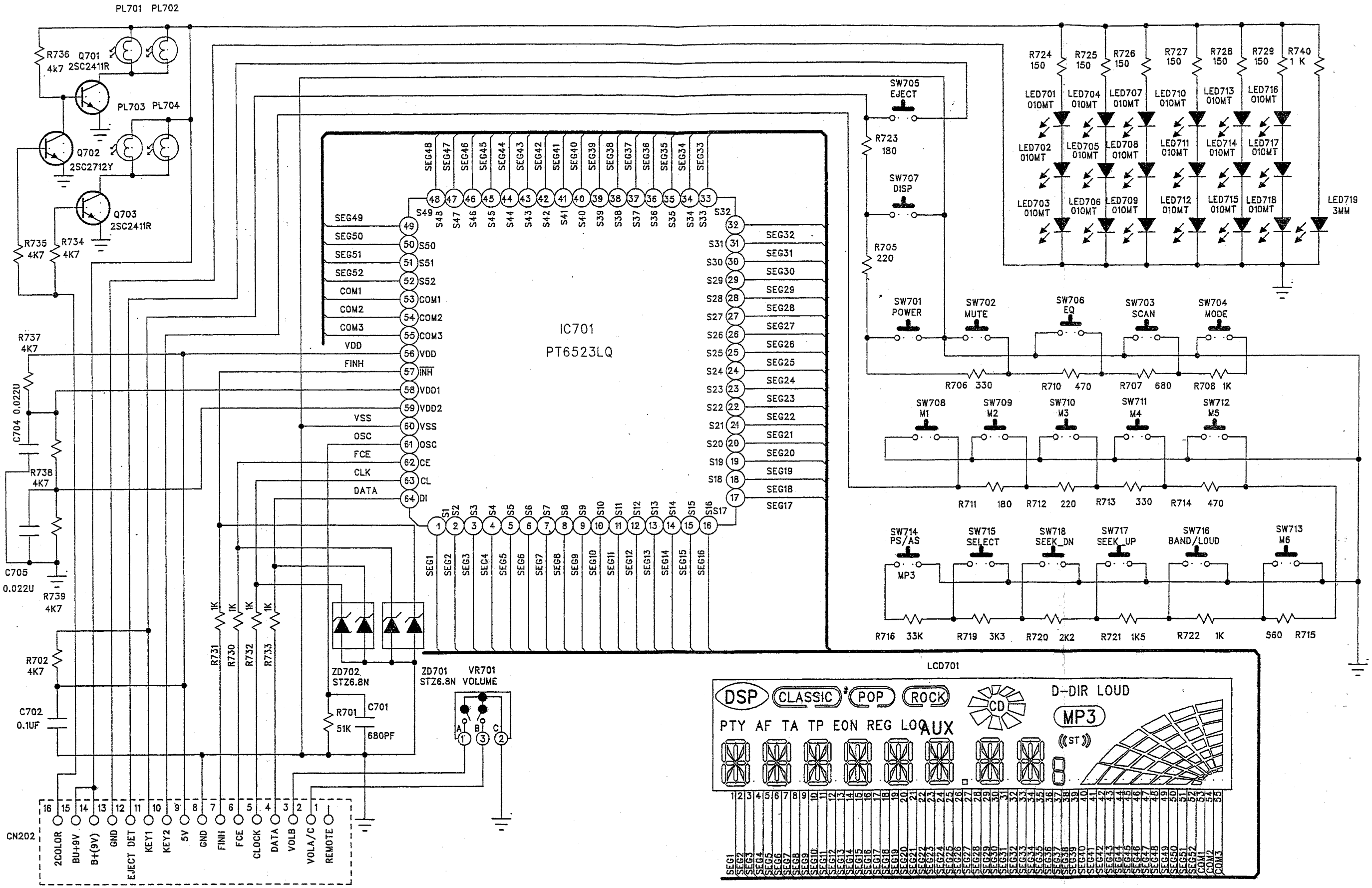
TUNER & POWER SECTION



NOTES:

1. All resistance values are indicated in "ohms" (k=1000 ohms. M=1000 kohms).
2. All capacitance values are indicated in "µF" (p=10^{-6} µF).

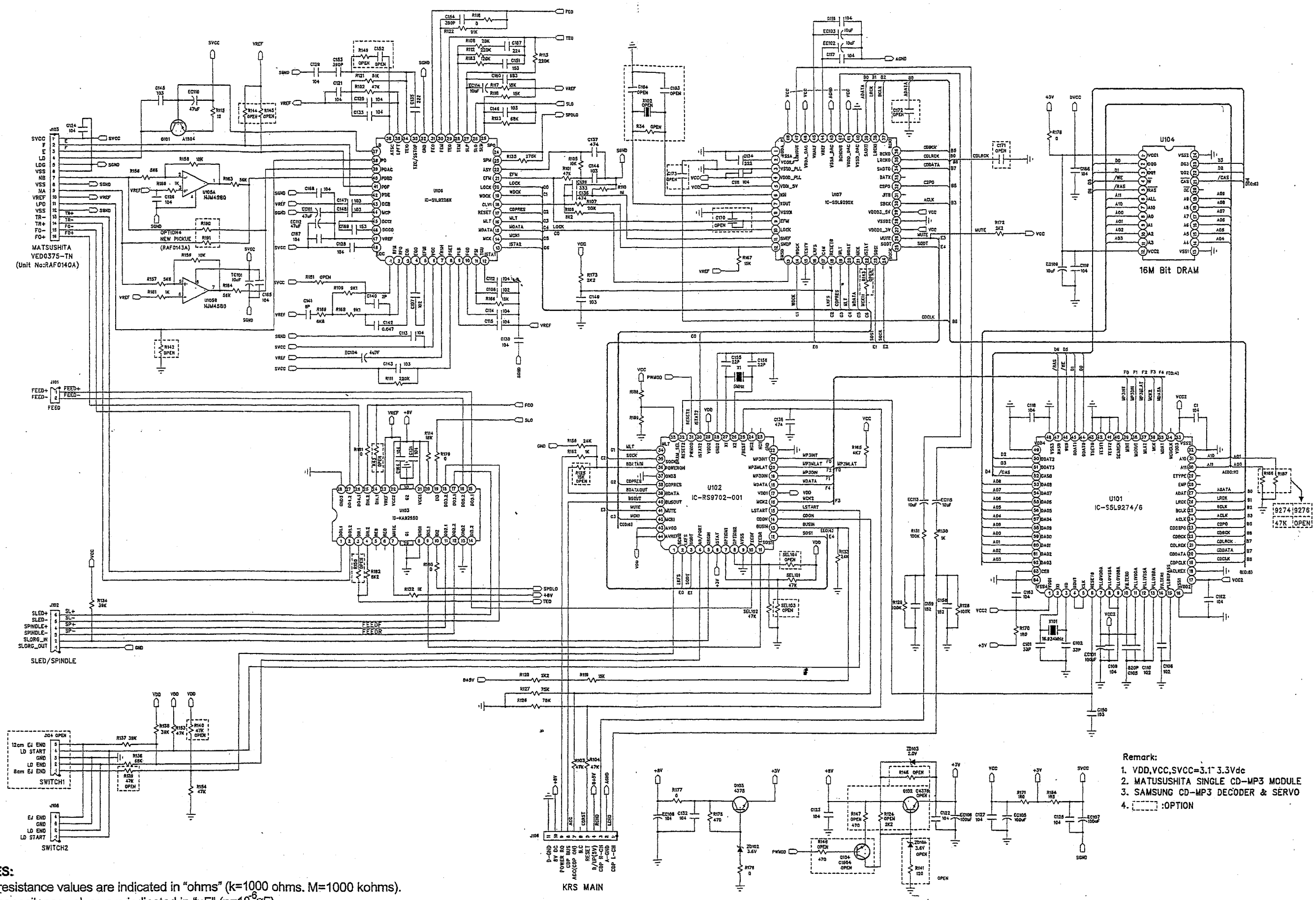
CPU & DISPLAY SECTION



NOTES:

1. All resistance values are indicated in "ohms" (k=1000 ohms. M=1000 kohms).
2. All capacitance values are indicated in "µF" (p=10^{-6} µF).

CD SECTION (For reference only) - Repairing is not recommended. Design subject to change without notice.



NOTES:

1. All resistance values are indicated in "ohms" (k=1000 ohms. M=1000 kohms).
2. All capacitance values are indicated in "μF" (p=10^{-6}μF).

Remark:

1. VDD,VCC,SVCC=3.1~3.3Vdc
2. MATUSUSHITA SINGLE CD-MP3 MODULE
3. SAMSUNG CD-MP3 DECODER & SERVO
4. [ ] :OPTION